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| 10/763,903 | 01/23/2004 | Werner Harter | 10191/3523 | 7765 |
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| KENYON & KENYON LLP ONE BROADWAY NEW YORK, NY 10004 | | | PUENTE, EMERSON C | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2113 | |

DATE MAILED: 11/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|---------------------------------------|--|
| Office Action Summary | Application No. 10/763,903 | Applicant(s) HARTER, WERNER | |
| | Examiner Emerson C. Puente | Art Unit 2113 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☒ Claim(s) 18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 January 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 1/23/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

This action is made **Non-Final**.

Claims 1-18 have been examined.

Drawings

New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because the drawing are informal. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Claim Objections

Claims 1, 6, 7, 8, 16, and 18 are objected to because of the following informalities:

In regards to claim 1, please change "the computer device" (see line 6 of claim) to "the **at least one** computer device" to maintain consistency in the claim language.

In regards to claim 1, please change "the processor unit" (see lines 9-10 of claim) to "the **at least one** processor unit" to maintain consistency in the claim language.

In regards to claim 1, please change "connecting the at least processor" (see line 11 of claim) to "connecting the at least **one** processor".

In regards to claim 1, please change "at least one of another processor unit" (see line 12 of claim) to "at least one **other** processor unit".

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In regards to claim 6, please change “the computer device” (see lines 2-3 of claim) to “the **at least one** computer device” to maintain consistency in the claim language.

In regards to claim 7, please change “the computer device” (see lines 2-3 of claim) to “the **at least one** computer device” to maintain consistency in the claim language.

In regards to claim 8, please change “the processor unit” (see line 5 of claim) to “the **at least one** processor unit” to maintain consistency in the claim language.

In regards to claim 8, please change “at least one of another processor unit” (see lines 8-9 of claim) to “at least one **other** processor unit”.

In regards to claim 16, please change “the processor unit” (see line 5 of claim) to “the **one of at least two** processor unit” to maintain consistency in the claim language.

In regards to claim 18, please change “the processor output means” to “a processor output means” because the limitation lacks antecedent basis.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3-5,7,8,10,11,13,14, and 17 are rejected under 35 U.S.C. 102(b) as being anticipate by US Patent No. 6,115,763 of Douskey et al. referred hereinafter “Douskey”.

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In regards to claim 1, Douskey discloses a system having at least one computer device for applications critical with regard to safety, comprising:

at least one processor unit. Douskey discloses an integrated circuit comprising a plurality of cores, wherein each core may include a predefined circuit arrange for performing one or more task, such as a processor core (see figure 2 and column 6 lines 24-35);

a memory unit for storing process data. Douskey discloses an integrated circuit comprising a plurality of cores, wherein each core may include a predefined circuit arrange for performing one or more task, such as a embedded memory (see figure 2 and column 6 lines 24-35);

a memory management unit for controlling memory accesses in the computer device. Douskey discloses a system interface unit (SIU) having an external function access port (see column 6 lines 25-31). In the instance that one of the core is an embedded memory, the SIU constitute a memory management unit for controlling memory accesses to that core.

an error detection unit for detecting errors in the memory unit. Douskey further discloses a core interface unit (CIU) can be configured as an array built in self test (ABIST) controller that is used to perform testing of array elements such as embedded memories (see column 7 lines 48-52).

at least one self-test unit assigned to the processor unit. Douskey further discloses a core interface unit (CIU) can be configured as an logic built in self test (LBIST) controller that is used to perform testing of logic circuitry, such as processors, within a core (see column 2 lines 25-30 and column 7 lines 48-52).

connection means for connecting the at least processor unit to at least one of another processor unit and the memory management unit, the at least one processor unit being positioned together with the memory unit on a shared chip surface area. Douskey discloses a bus connecting the system interface unit with each of the cores, wherein some of the core may be processor cores (column 6 lines 28-35). Douskey also discloses wherein the cores, which may include processor cores and embedded memory are incorporated within an integrated circuit device or chip (see column 6 lines 24-26 and 32-35).

In regards to claim 3, Douskey discloses the claim limitation as discussed above. Douskey further discloses wherein each processor unit is assigned a self-test unit for performing a self-test. Douskey discloses a CIU, or self test unit, disposed in each of the cores (see column 7 lines 18-20) and further discloses the cores may be processor cores (see column 6 lines 32-35).

In regards to claim 4, Douskey discloses the claim limitation as discussed above. Douskey further discloses two processor units are coupled by the connection means, each processor unit being assigned a self-test unit. Douskey discloses a bus connecting each of the cores, wherein some of the core may be processor cores (column 6 lines 24-35) and a CIU, or self test unit, disposed in each of the cores (see column 7 lines 18-20).

In regards to claim 5, Douskey discloses the claim limitation as discussed above. Douskey further discloses wherein a plurality of computer devices are connected to one another with the aid of at least one connection unit, the plurality of the computer devices having one of an equal and different number of processor units. Douskey discloses the system may be implemented as more than one integrated circuit device, wherein each integrated circuit device may implement a multicore design (see column 5 lines 60-65).

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In regards to claim 7, Douskey discloses the claim limitation as discussed above.

Douskey further discloses wherein the memory management unit for controlling the memory access in the computer device and the at least one processor unit are implemented integrally as a single unit. Douskey discloses an integrated circuit connecting the system interface unit with each of the cores, wherein some of the core may be processor cores (column 6 lines 24-35).

In regards to claim 8, Douskey discloses a method for process-data processing in at least one computer device having at least one processor unit for applications critical with regard to safety, comprising:

testing the at least one processor unit using at least one self-test unit assigned to the processor unit. Douskey further discloses a core interface unit (CIU) can be configured as an logic built in self test (LBIST) controller that is used to perform testing of logic circuitry, such as processors, within a core (see column 2 lines 25-30 and column 7 lines 48-52).

positioning the at least one processor unit together with a memory unit on a shared chip surface area. Douskey also discloses wherein the cores, which may include processor cores and embedded memory are incorporated within an integrated circuit device or chip (see column 6 lines 24-26 and 32-35)

connecting the at least one processor unit to at least one of another processor unit and a memory management unit using connection means in the at least one computer device. Douskey discloses a bus connecting the system interface unit with each of the cores, wherein some of the core may be processor cores (column 6 lines 28-35).

controlling memory accesses in the at least one computer device using the memory management unit. Douskey discloses a system interface unit (SIU) having an external function

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access port (see column 6 lines 25-31). In the instance that one of the core is an embedded memory, the SIU constitute a memory management unit for controlling memory accesses to that core.

storing process data in the memory unit. Douskey discloses an integrated circuit comprising a plurality of cores, wherein each core may include a predefined circuit arrange for performing one or more task, such as a embedded memory (see figure 2 and column 6 lines 24-35);

detecting errors in the memory unit using an error detection unit. Douskey further discloses a core interface unit (CIU) can be configured as an array built in self test (ABIST) controller that is used to perform testing of array elements such as embedded memories (see column 7 lines 48-52).

In regards to claim 10, Douskey discloses the claim limitation as discussed above. Douskey further discloses wherein two processor units, coupled by the connection means, are each tested by assigned self-test units in the at least one computer device. Douskey discloses a bus connecting the system interface unit with each of the cores, wherein some of the core may be processor cores (column 6 lines 24-35) and a CIU, or self test unit, disposed in each of the cores (see column 7 lines 18-20).

In regards to claim 11, Douskey discloses the claim limitation as discussed above. Douskey further discloses wherein at least two computer devices having one of an equal and different number of processor units are combined using at least one connection unit. Douskey discloses the system may be implemented as more than one integrated circuit device, wherein each integrated circuit device may implement a multicore design (see column 5 lines 60-65).

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In regards to claim 13, Douskey discloses the claim limitation as discussed above.

Douskey further discloses wherein the at least one processor unit is tested using an assigned self-test unit. Douskey discloses a CIU, or self test unit, disposed in each of the cores (see column 7 lines 18-20) and further discloses the cores may be processor cores (see column 6 lines 32-35).

In regards to claim 14, Douskey discloses the claim limitation as discussed above.

Douskey further discloses wherein the self-test unit outputs an error message via self-test unit output means to at least one of an external display unit and an error processing unit if a fault is recognized in the at least one processor unit by the assigned self-test unit. Douskey discloses outputting an ATTN signal, indicating an error message, from the CIUs, or self test units, to flag errors, wherein the ATTN signal is outputted to the master interface unit connected to the service processor, indicating an error processing unit (see column 8 lines 29-34).

In regards to claim 17, Douskey discloses the claim limitation as discussed above.

Douskey further discloses wherein, if errors occur in the memory unit, an error message is output via error detection unit output means to at least one of an external display unit and an error processing unit. Douskey discloses outputting an ATTN signal, indicating an error message, from the CIUs, or error detection unit in the case where the core is memory, to flag errors, wherein the ATTN signal is outputted to the master interface unit connected to the service processor, indicating an error processing unit (see column 8 lines 29-34).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2,6,9, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Douskey in view of US Patent No. 5,313,424 of Adams et al. referred hereinafter "Adams".

In regards to claim 2, Douskey discloses the claim limitation as discussed above.

However, Douskey fails to explicitly disclose wherein the error detection unit is implemented as an error correction unit for correcting errors in the memory unit.

Adams discloses ABIST systems are known to use ECC techniques for correcting error founds in memory (see column 1 lines 34-38).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teachings of Douskey and Adams wherein the ABIST, as disclosed in Douskey, further include ECC techniques, indicating wherein the error detection unit is implemented as an error correction unit for correcting errors in the memory unit. A person of ordinary skill in the art would have been motivated to combine the teachings because Douskey is concerned with testing memory devices via an ABIST (see column 7 lines 49-52), and ECC techniques, as per teachings of Adams, are known to be used in ABIST systems for correcting error founds in memory (see column 1 lines 34-38). Adams further discloses using a self testing and self repairing system lower the cost of making memories by reducing testing expenses and improving memory yields (see column 1 lines 30-34).

In regards to claim 6, Douskey discloses the claim limitation as discussed above.

However, Douskey fails to explicitly disclose wherein each memory unit is assigned one error correction unit in the computer device.

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Adams discloses ABIST systems are known to use ECC techniques for correcting error founs in memory (see column 1 lines 34-38).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teachings of Douskey and Adams wherein the ABIST, as disclosed in Douskey, further include ECC techniques, indicating wherein each memory unit is assigned one error correction unit in the computer device. A person of ordinary skill in the art would have been motivated to combine the teachings because Douskey is concerned with testing memory devices via an ABIST (see column 7 lines 49-52), and ECC techniques, as per teachings of Adams, are known to be used in ABIST systems for correcting error founs in memory (see column 1 lines 34-38). Adams further discloses using a self testing and self repairing system lower the cost of making memories by reducing testing expenses and improving memory yields (see column 1 lines 30-34).

In regards to claim 9, Douskey discloses the claim limitation as discussed above. However, Douskey fails to explicitly disclose wherein errors in the memory unit are corrected using an error correction unit.

Adams discloses ABIST systems are known to use ECC techniques for correcting error founs in memory (see column 1 lines 34-38).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teachings of Douskey and Adams wherein the ABIST, as disclosed in Douskey, further include ECC techniques, indicating wherein errors in the memory unit are corrected using an error correction unit. A person of ordinary skill in the art would have been motivated to combine the teachings because Douskey is concerned with testing memory devices

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via an ABIST (see column 7 lines 49-52), and ECC techniques, as per teachings of Adams, are known to be used in ABIST systems for correcting error founds in memory (see column 1 lines 34-38). Adams further discloses using a self testing and self repairing system lower the cost of making memories by reducing testing expenses and improving memory yields (see column 1 lines 30-34).

In regards to claim 12, Douskey discloses the claim limitation as discussed above. However, Douskey fails to explicitly disclose wherein the memory unit in the at least one computer device is checked for errors and corrected using an assigned error correction unit.

Adams discloses ABIST systems are known to use ECC techniques for correcting error founds in memory (see column 1 lines 34-38).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teachings of Douskey and Adams wherein the ABIST, as disclosed in Douskey, further include ECC techniques, indicating wherein the memory unit in the at least one computer device is checked for errors and corrected using an assigned error correction unit. A person of ordinary skill in the art would have been motivated to combine the teachings because Douskey is concerned with testing memory devices via an ABIST (see column 7 lines 49-52), and ECC techniques, as per teachings of Adams, are known to be used in ABIST systems for correcting error founds in memory (see column 1 lines 34-38). Adams further discloses using a self testing and self repairing system lower the cost of making memories by reducing testing expenses and improving memory yields (see column 1 lines 30-34).

Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Douskey in view of US Patent No. 6,868,309 of Begelman et al. referred hereinafter "Begelman".

In regards to claim 15, Douskey discloses the claim limitation as discussed above. However, Douskey fails to explicitly disclose wherein at least two processor units exchange at least one of starting values, intermediate results, intermediate values, and final results via the connection means, and wherein the at least two processor units check the at least one of starting values, intermediate results, intermediate values, and final results for uniformity.

However, Begelman discloses redundant processors, wherein the redundant processors may compare each other's computational results during executing command instructions and if the results between the processors differ, then the processors may perform self test to determine the faulty processor (see column 9 lines 25-30).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teachings of Douskey and Begelman to include redundant processors, wherein the redundant processors may compare each other's computational results during executing command instructions and if the results between the processors differ, then the processors may perform self test to determine the faulty processor, indicating wherein at least two processor units exchange at least one of starting values, intermediate results, intermediate values, and final results via the connection means, and wherein the at least two processor units check the at least one of starting values, intermediate results, intermediate values, and final results for uniformity. A person of ordinary skill in the art would have been motivated to combine the teachings because Douskey discloses a data processing system comprising

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processor cores (see column 6 lines 32-35), and as such, is concerned being able to process data, and having the processors redundant, as per teachings of Begelman, ensures no single point of failure, thus permitting continued operations or data processing upon failure to one processor (see column 1 lines 34-35 and 46-48).

In regards to claim 16, Douskey in view of Begelman discloses the claim limitation as discussed above. Begelman further discloses wherein one of the at least two processor units outputs an error message via processor unit output means to at least one of an external display unit and an error processing unit if the processor unit detects a deviation between the final results and one of the intermediate results and intermediate values. Begelman discloses when the results differ, performing a self test of the processors, wherein the proper functioning processor takes control and resets the failed processor (see column 9 lines 28-30).

Allowable Subject Matter

Claim 18 would be allowable if rewritten to overcome the Claim Objections set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

See Form PTO-892.

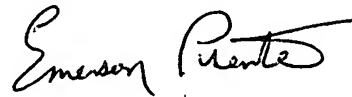
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emerson C. Puente whose telephone number is (571) 272-3652.

The examiner can normally be reached on 8-5 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert W. Beausoliel can be reached on (571) 272-3645. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Emerson Puente
Examiner
AU 2113